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FISH & RICHARDSON, PC
P.O. BOX 1022
MINNEAPOLIS, MN 55440-1022

| EXAMINER |
|---|
| GELAGAY, SHEWAYE |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on <u>01 January 1942</u>.

2a)☒ This action is **FINAL**.          2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) <u>1-42</u> is/are pending in the application.

  4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-42</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

  a)☐ All   b)☐ Some * c)☐ None of:

    1.☐ Certified copies of the priority documents have been received.

    2.☐ Certified copies of the priority documents have been received in Application No. _____.

    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

  * See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

# DETAILED ACTION

1.     This office action is in response to Applicant's amendment filed on April 13, 2007.

Claims 5, 8, 10, 17, 24, 27, 34 have been amended. Claims 1-42 are pending.

## *Drawings*

2.     In view of the amendment filed April 13, 2007, the Examiner withdraws the

objection to the specification.

## *Claim Objections*

3.     In view of the amendment filed April 13, 2007, the Examiner withdraws the

objection to claims 5, 10, 24 and 34.

## *Claim Rejections - 35 USC § 112*

4.     In view of the amendment filed April 13, 2007, the Examiner withdraws the

rejection of claims 8 and 27 under 35 U.S.C. 112.

## *Response to Arguments*

5.     Applicant's arguments filed April 13, 2007 have been fully considered but they

are not persuasive. In response to the arguments concerning the previously rejected

claims, the following comments are made:

The applicant argued that the combination of Robins with Twomey fails to

describe or suggest "a security policy database cache including at least one primary

table including signature values that indicate that a IPSec packet's security policy

database (SPD) information may be in the cache and at least one secondary table

including cache entries having a selector, flags security association (SA) information".

The Examiner disagrees. Robins teaches a system and process for high speed pattern

matching for application level switching of data packets comprising a primary table A

and a secondary table B, wherein the primary table entry contains an index to an entry

in primary schedule table B. Robins teaches examining packet headers received and to

determine whether the packet belongs to a known flow and to provide instructions

accordingly for appropriate scheduling. The packet header entering is pre-processed by

the hash preprocessor and compared by the Hash Lookup Engine (HLE) and if no

match is found in the cache the HLE will look to the entire table stored in SRAM. (col. 2,

line 57-col. 3, line 15; col. 7, lines 8-38; col. 19, line 29-col. 66, line 18; col. 21, lines 20-

61) Twomey teaches a security processor with a security association (SA) cache and an

encryption/decryption engine. The SA cache may be configured to store various security

association parameters for use in decryption/encrypting packets. The SAs stored in the

SA cache may be read from a security association database (SAD) stored in the

memory which may also be storing a security policy database (SPD). (page 3,

paragraph 33)

In response to applicant's argument that there is no suggestion to combine the

references, the examiner recognizes that obviousness can only be established by

combining or modifying the teachings of the prior art to produce the claimed invention

where there is some teaching, suggestion, or motivation to do so found either in the

references themselves or in the knowledge generally available to one of ordinary skill in

the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re

Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Robins teaches a

system and process for high speed pattern matching for application level switching of

data packets. Twomey teaches a packet processing system and handling packet traffic according to IPSec standards using a security association stored in SA cache with Security Policy Database (SPD). It would have been obvious to one ordinary skill in the art at the time the invention was made to modify the method disclosed by Robins with Twomey in order to store various security association parameters for use in processing packets. (page 3, paragraph 33) In addition, it is well known in the art cache is a memory area where frequently accessed data can be stored for rapid access.

Therefore, all the previous rejections are maintained.

### *Specification*

6.     The disclosure is objected to because of the following informalities: Some of the informalities are the Background of the Invention should have two parts Field of the Invention and Description of the Related Art; Brief Summary of the Invention must be included. Examiner suggests checking the disclosure against the complete list given in the previous Office Action.

### *Claim Rejections - 35 USC § 103*

7.     The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8.      Claims 1-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Robins et al. (hereinafter Robins) U.S. Patent 6,430,184 in view of Twomey U.S.

Publication 2003/0131228.

As per claims 1, 17 and 27:

Robins teaches a method comprises:

producing a signature of a packet and at least first and second indexes into

corresponding first and second primary table; (col. 2, line 57-col. 3, line 15; col. 7, lines

8-38; col. 19, line 29-col. 20, line 66; col. 21, lines 20-61)

reading contents of a bucket from a first one of the primary tables and a bucket

from a second one of the primary tables to determine whether either of the buckets

have contents that match to the produced signature; (col. 2, line 57-col. 3, line 15; col.

7, lines 8-38; col. 19, line 29-col. 20, line 66; col. 21, lines 20-61) and

for a match, determining if a selector in an entry in a secondary table matches a

selector of the packet; and if a match processing according to an operation indicated by

the entry. (col. 2, line 57-col. 3, line 15; col. 7, lines 8-38; col. 19, line 29-col. 66, line 18;

col. 21, lines 20-61)

Robins does not explicitly disclose a security policy database cache. Twomey in

analogous art, however, discloses a security policy database cache. (page 3,

paragraphs 33-34; page 4, paragraphs 41-44 ; page 5, pargraph 52; page 7,

paragraphs 73-76). It would have been obvious to one ordinary skill in the art at the time

the invention was made to modify the method disclosed by Robins with Twomey in

order to store various security association parameters for use in processing packets.

(page 3, paragraph 33)

As per claims 2:

The combination of Robins and Twomey teaches all the subject matter as

discussed above. In addition, Robins further discloses wherein the at least one primary

table resides in DRAM. (col. 7, lines 8-38; col. 19, line 29-col. 20, line 66; col. 21, lines

20-61)

As per claims 3 and 39-40:

The combination of Robins and Twomey teaches all the subject matter as

discussed above. In addition, Robins further discloses wherein the at least one

secondary table resides in SDRAM. (col. 7, lines 8-38; col. 19, line 29-col. 20, line 18;

col. 66, lines 20-61)

As per claims 4-5 and 41:

The combination of Robins and Twomey teaches all the subject matter as

discussed above. In addition, Robins further discloses wherein at least one primary

table and the at least one secondary table resides in the same memory. (col. 7, lines 8-

38; col. 19, line 29-col. 20, line 66; col. 21, lines 20-61)

As per claim 6:

The combination of Robins and Twomey teaches all the subject matter as

discussed above. In addition, Robins further discloses wherein the at least one primary

table is divided into a plurality of buckets and each bucket is subdivided into bins. (col.

19, line 60-col. 20, line 66)

As per claim 7:

The combination of Robins and Twomey teaches all the subject matter as discussed above. In addition, Robins further discloses wherein the cache has a one-to-one correlation between the at least one primary table location and the at least one secondary table. (col. 7, lines 8-38; col. 19, line 29-col. 20, line 66; col. 21, lines 20-61)

As per claims 8 and 29:

The combination of Robins and Twomey teaches all the subject matter as discussed above. In addition, Twomey further discloses wherein the signature index for the first primary table is produced using an IP selector and either a hardware hash unit or a software hashing algorithm. (page 4, paragraph 44)

As per claims 9, 19-20 and 30:

The combination of Robins and Twomey teaches all the subject matter as discussed above. In addition, Twomey further discloses wherein the IP selector can be either IPv4 or IPv6 and includes IP destination, IP source, IP protocol, IP source port, IP destination port. (page 4, paragraphs 41 and 44)

As per claims 10 and 14:

The combination of Robins and Twomey teaches all the subject matter as discussed above. In addition, Robins further discloses wherein when the at least one primary table is searched for a matching signature to a packet, and if no matching signature is found, the at least one secondary table is not accessed. (col. 7, lines 8-38; col. 19, line 29-col. 20, line 66)

As per claims 11-12, 15-16, 26 and 36:

The combination of Robins and Twomey teaches all the subject matter as discussed above. In addition, Robins further discloses wherein when the at least one primary table is searched for a matching signature to a packet, and a matching signature is found, the at least one secondary table is accessed. (col. 7, lines 8-38; col. 19, line 29-col. 20, line 18)

As per claim 13:

The combination of Robins and Twomey teaches all the subject matter as discussed above. In addition, Robins further discloses wherein the at least one primary table is a first one of a plurality of primary tables and the at least one secondary table is a first one of a plurality of secondary tables. (col. 2, line 57-col. 3, line 15; col. 7, lines 8-38; col. 19, line 29-col. 20, line 66; col. 21, lines 20-61)

As per claims 18 and 28:

The combination of Robins and Twomey teaches all the subject matter as discussed above. In addition, Robins further discloses wherein processing comprises, processing the packet by reading flags for the packet entry to process the packet according to the flags. (col. 18, lines 1-44; col. 19, line 29-col. 20, line 66)

As per claims 21 and 31:

The combination of Robins and Twomey teaches all the subject matter as discussed above. In addition, Robins further discloses wherein the packets are incoming packets. (Abstract)

As per claims 22 and 32:

The combination of Robins and Twomey teaches all the subject matter as discussed above. In addition, Robins further discloses wherein the packets are outgoing packets. (Abstract)

As per claims 23 and 33:

The combination of Robins and Twomey teaches all the subject matter as discussed above. In addition, Robins further discloses wherein an entry is added to the security policy database cache. (col. 7, lines 8-38; col. 19, line 29-col. 20, line 66; col. 21, lines 20-61)

As per claims 24 and 34:

The combination of Robins and Twomey teaches all the subject matter as discussed above. In addition, Twomey further discloses wherein if the signatures are exhausted, the method further comprises: searching a security policy database to locate the proper operation for the packet and to locate the correct security associations (Sas) to apply to the packet; and inserting the located correct SA as a cache entry into a SPD cache. (page 3, paragraphs 33-34; page 4, paragraphs 41-44 ; page 5, pargraph 52; page 7, paragraphs 73-76).

As per claim 25 and 35 :

The combination of Robins and Twomey teaches all the subject matter as discussed above. In addition, Robins further discloses wherein packet processing determines if the signature equals zero, and if zero, the packet processing sets the signature to another, non-zero value. (col. 18, lines 1-44)

As per claim 37:

Robins teaches a network forwarding device comprising: at least one physical interface; (col. 2, line 20-col. 3, line14; col. 5, lines 43-65) a framer; (col. 2, line 20-col. 3, line14; col. 5, lines 43-65) a network processor; (col. 2, line 20-col. 3, line14; col. 5, lines 43-65) a database cache to provide data to the network processor when processing packets, the database including: at least one primary table including signature values that indicate that a packet's SPD information may be in the cache; (col. 2, line 57-col. 3, line 15; col. 7, lines 8-38; col. 19, line 29-col. 20, line 66; col. 21, lines 20-61) and at least one secondary table including cache entries having a selector, flags, SA information and an operation to perform on the corresponding packet for which a cache lookup was made. (col. 2, line 57-col. 3, line 15; col. 7, lines 8-38; col. 18, lines 1-44; col. 19, line 29-col. 20, line 66; col. 21, lines 20-61)

Robins does not explicitly disclose a security policy database cache; and a switch fabric. Twomey in analogous art, however, discloses a security policy database cache; (page 3, paragraphs 33-34; page 4, paragraphs 41-44 ; page 5, pargraph 52; page 7, paragraphs 73-76) and a switch fabric. (figure 1, item 14) It would have been obvious to one ordinary skill in the art at the time the invention was made to modify the method disclosed by Robins with Twomey in order to store various security association parameters for use in processing packets. (page 3, paragraph 33)

As per claim 38:

The combination of Robins and Twomey teaches all the subject matter as discussed above. In addition, Robins further discloses wherein the interface is a media access controller device. (col. 2, lines 20-39)

9.     Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Robins

et al. (hereinafter Robins) U.S. Patent 6,430,184 in view of Twomey U.S. Publication

2003/0131228 and further in view of England et al. (hereinafter England) U.S. Patent

7,020,772.

The combination of Robins and Twomey teaches all the subject matter as

discussed above. Both references do not explicitly disclose a scratchpad memory to

store the at least one primary table. England in analogous art, however, discloses a

scratchpad memory to store the at least one primary table. (col. 7, lines 46-67) It would

have been obvious to one ordinary skill in the art at the time the invention was made to

modify the system disclosed by Robins and Twomey with England in order to provide a

special memory that holds small items of data for rapid retrieval.


### Conclusion

10.     **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action.  In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shewaye Gelagay whose telephone number is 571-272-4219. The examiner can normally be reached on 8:00 am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Emmanuel Moise can be reached on 571-272-3865. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Shewaye Gelagay

EMMANUEL L. MOISE
SUPERVISORY PATENT EXAMINER